



MobiCom-M30 Antenna Test Report

**824-894 MHz
1.85-1.99 GHz**

Ethertronics Part No.: GZ04001

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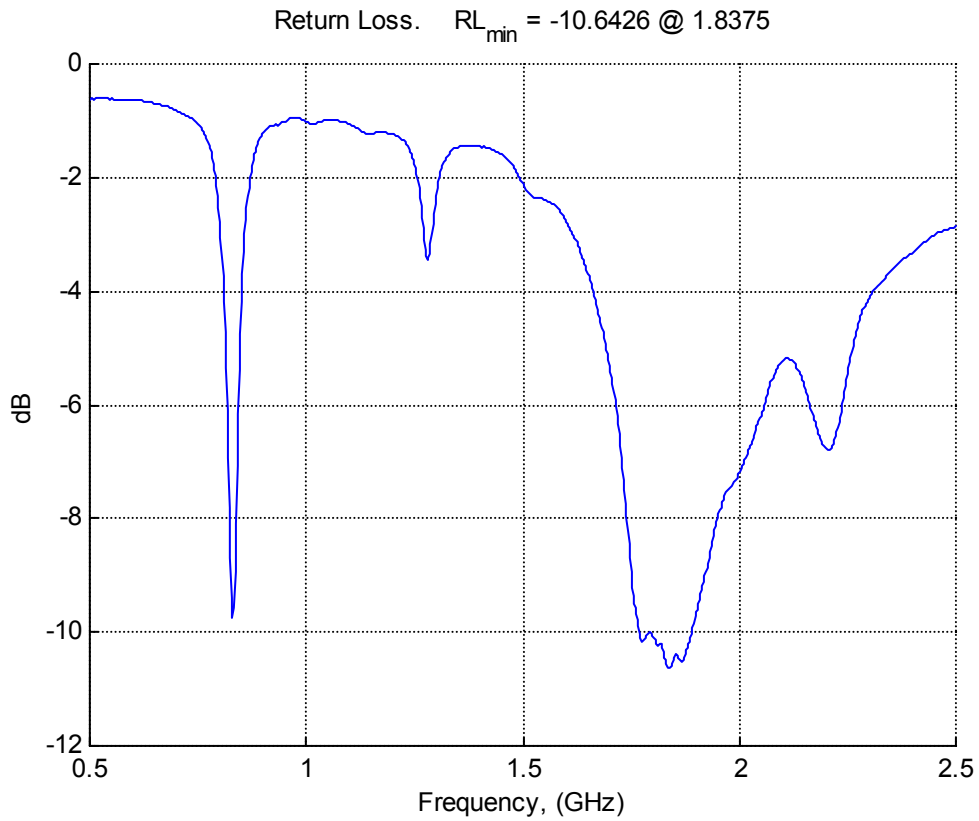
1 Summary

1.1 Test Condition

Complete phone components were assembled.



1.2 Input Return Loss

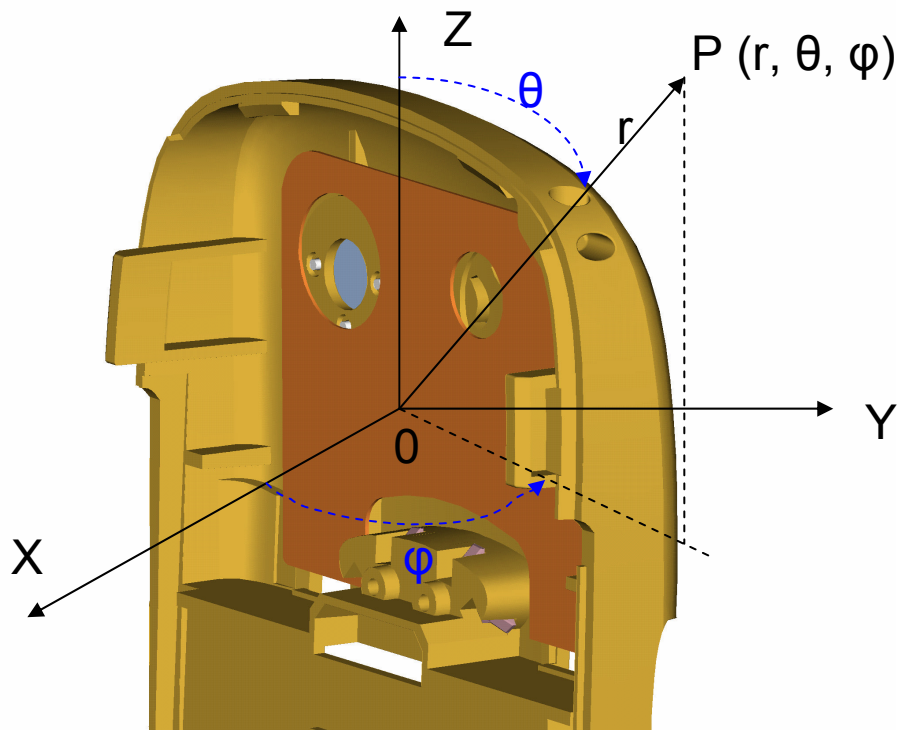


1.3 Bandwidth, Efficiency and Gain Data

<u>Bandwidth</u>			
	Low Band	High Band	Specification
@S11= -5.0dB	34 MHz	569 MHz	Low Band: 70MHz High Band: 140 MHz
<u>Efficiency Free Space</u>			
Efficiency	GSM Band (0.80-0.87GHz)	PCS Band (1.85-1.99GHz)	Specification
Overall (%)	24.76	41.62	
Best Efficiency (%)	40.18	46.9	
LE* (%)	19.89	45.67	
HE* (%)	11.46	35.87	
<u>Efficiency Against the Head</u>			
Efficiency	GSM Band (0.80-0.87GHz)	PCS Band (1.85-1.99GHz)	Specification
Overall (%)	10.73	29.72	10% min
Best Efficiency (%)	21.48	33.34	
LE* (%)	20.55	33.03	
HE* (%)	4.00	26.91	

*Note: LE = Low Edge; HE = High Edge

1.4 Reference Plane Definition



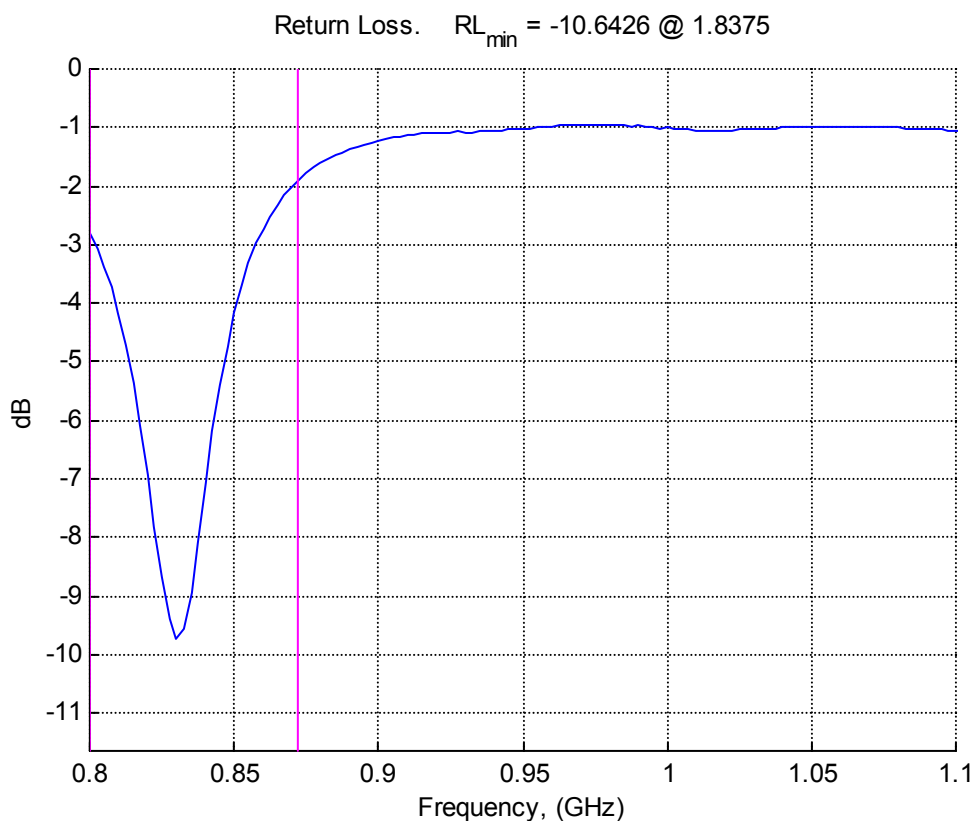
Note:

Azimuth Plane: XY Plane

Elevation Plane: XZ Plane

2 MobiCom-M30 Antenna Measurement (Low Band)

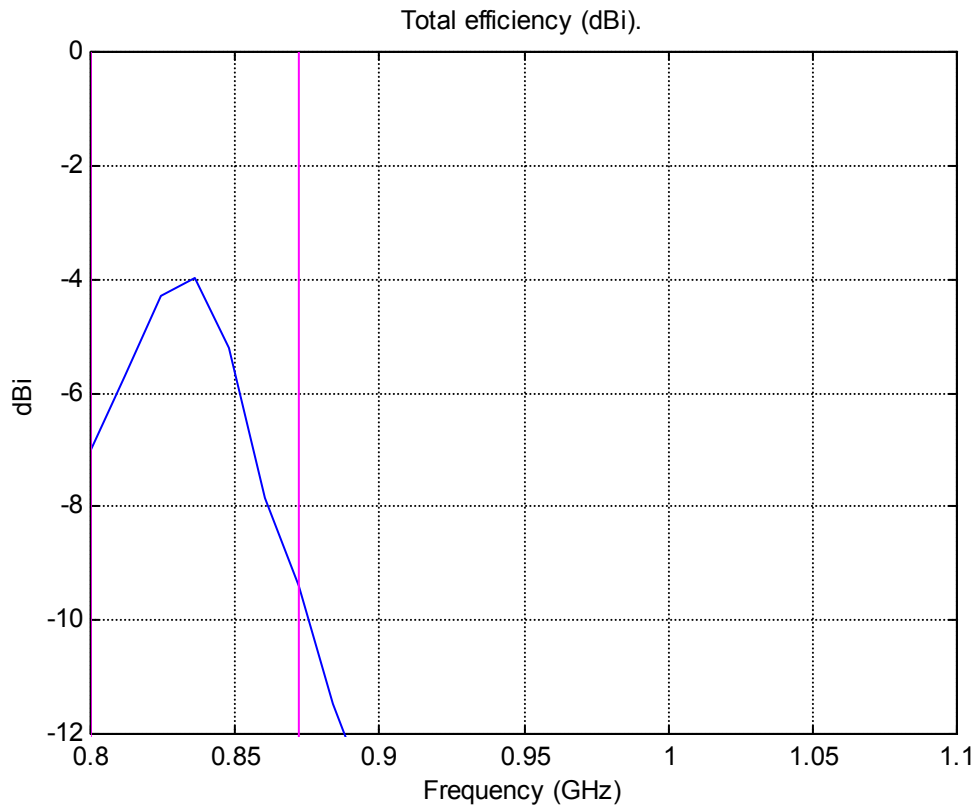
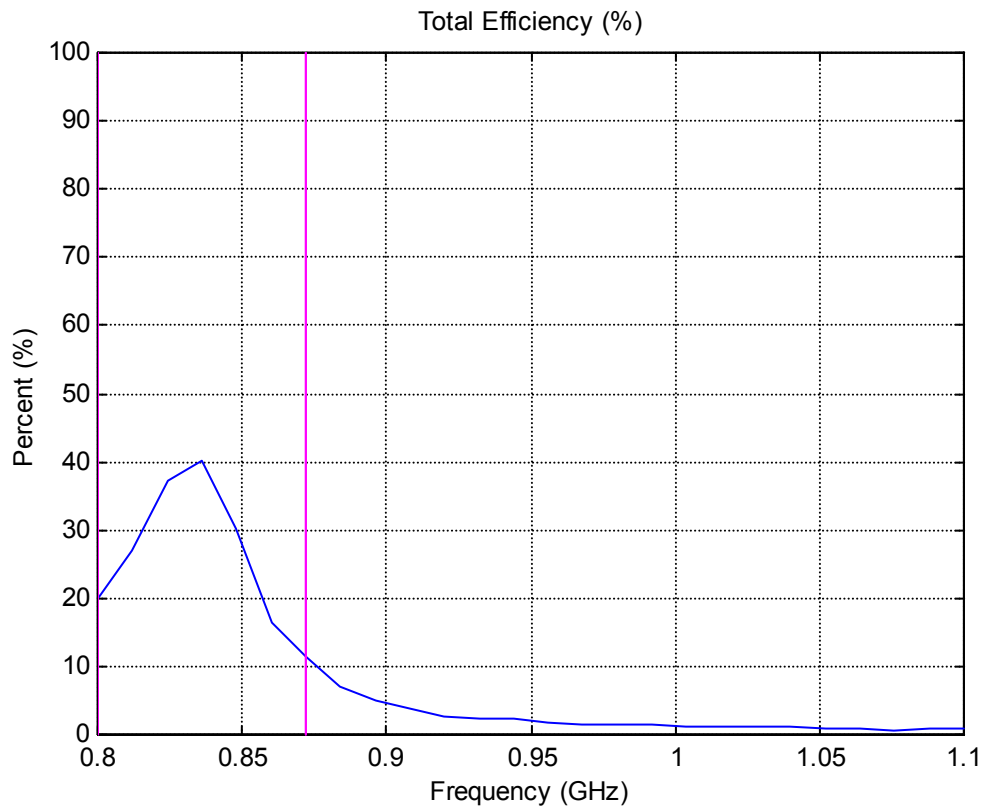
2.1 Return Loss



2.2 Efficiency

Overall Eff. (Az.+El.) : 24.75 % (-6.06 dBi) between [0.8 0.872] GHz
Best Eff. (Az.+El.) : 40.18 % (-3.96 dBi) @ 0.836 GHz between [0.8 0.872] GHz
Low Edge Eff. (Az.+El.) : 19.89 % (-7.01 dBi) @ 0.8 GHz
High Edge Eff. (Az.+El.) : 11.46 % (-9.41 dBi) @ 0.872 GHz

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2.3 Radiation Pattern

Red: Main polarization

Blue: Cross polarization

Green: Main+Cross polarization

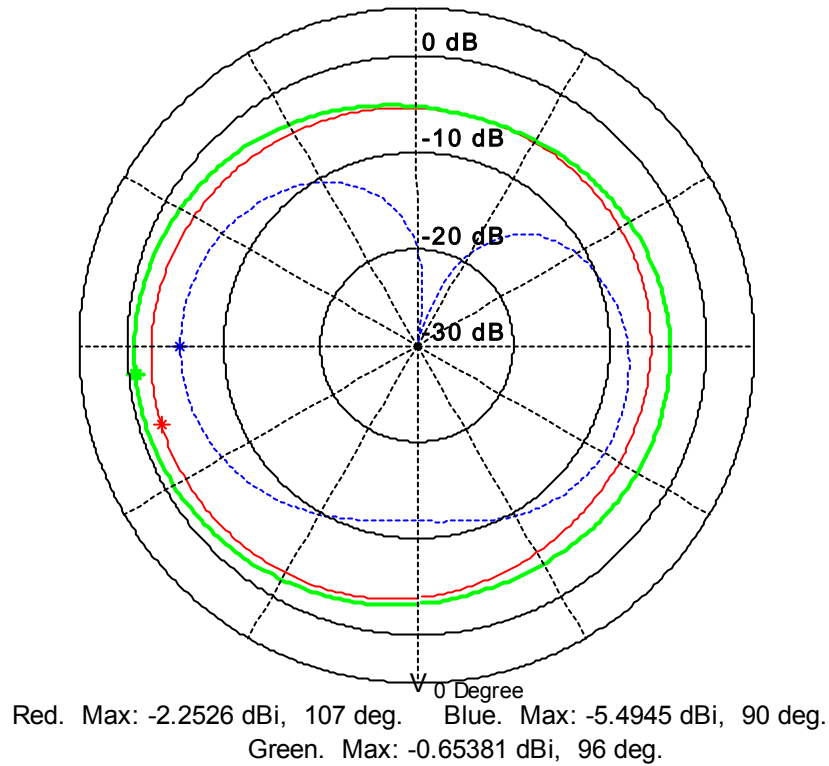
Azimuth

Freq. = 0.836 GHz G_{max} = -0.65381 dBi $G_{\text{avg.}}$ = -2.9398 dBi

Elevation

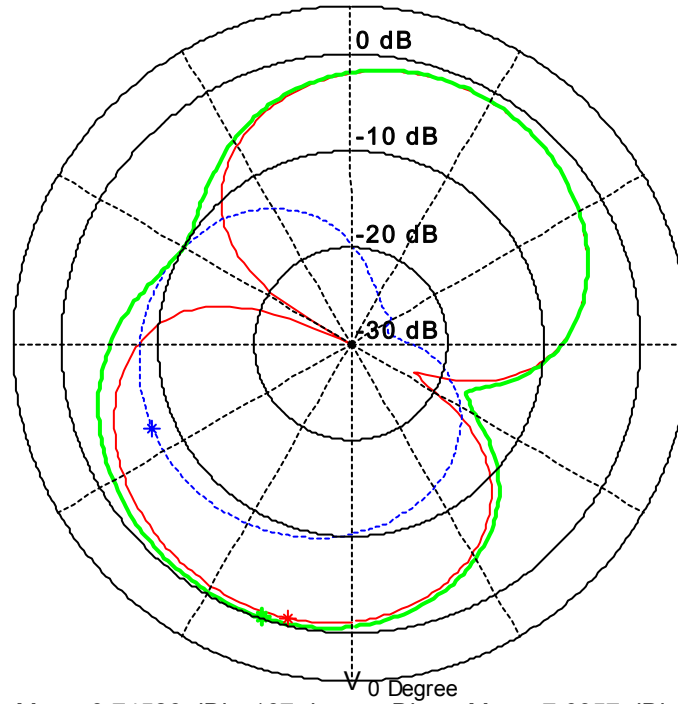
Freq. = 0.836 GHz G_{max} = -0.16662 dBi $G_{\text{avg.}}$ = -3.1982 dBi

Freq = 0.836 GHz $G_{\text{max.}}$ = -0.65381 dBi $\text{Gain}_{\text{avg.}}$ = -2.9398 dBi



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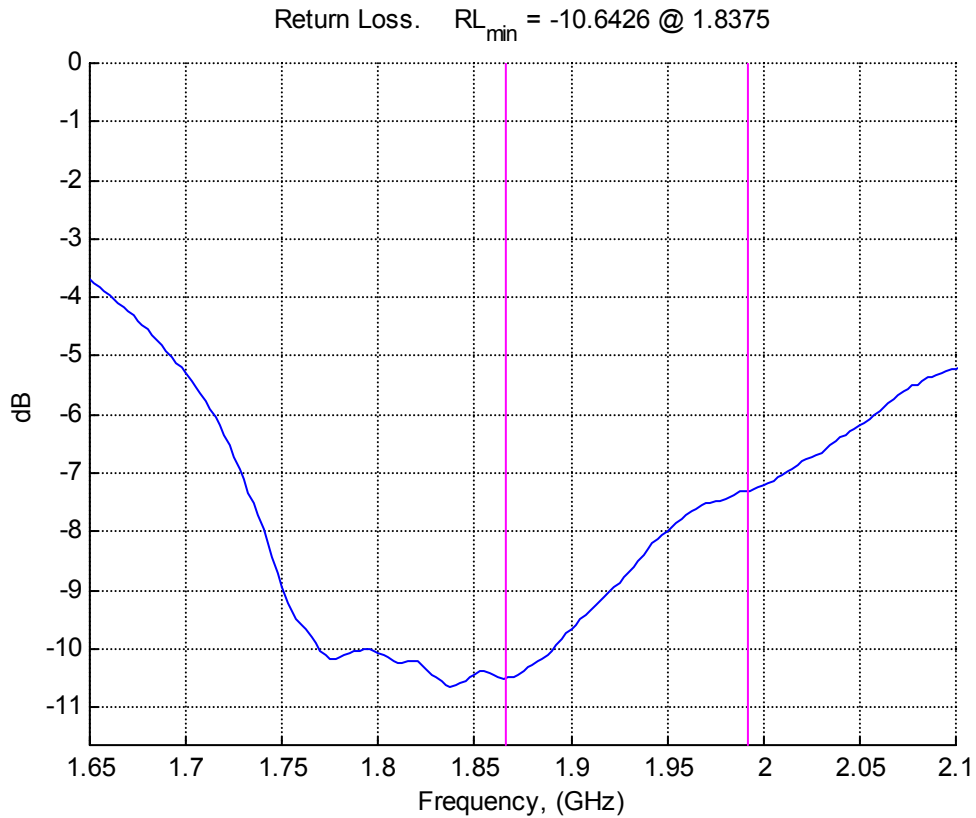
Freq = 0.836 GHz $G_{\max.} = -0.16662 \text{ dBi}$ $\text{Gain}_{\text{avg.}} = -3.1982 \text{ dBi}$



Red. Max: -0.74526 dBi , 167 deg. Blue. Max: -7.6357 dBi , 113 deg.
Green. Max: -0.16662 dBi , 162 deg.

3 MobiCom-M30 Antenna Measurement (High Band)

3.1 Return Loss



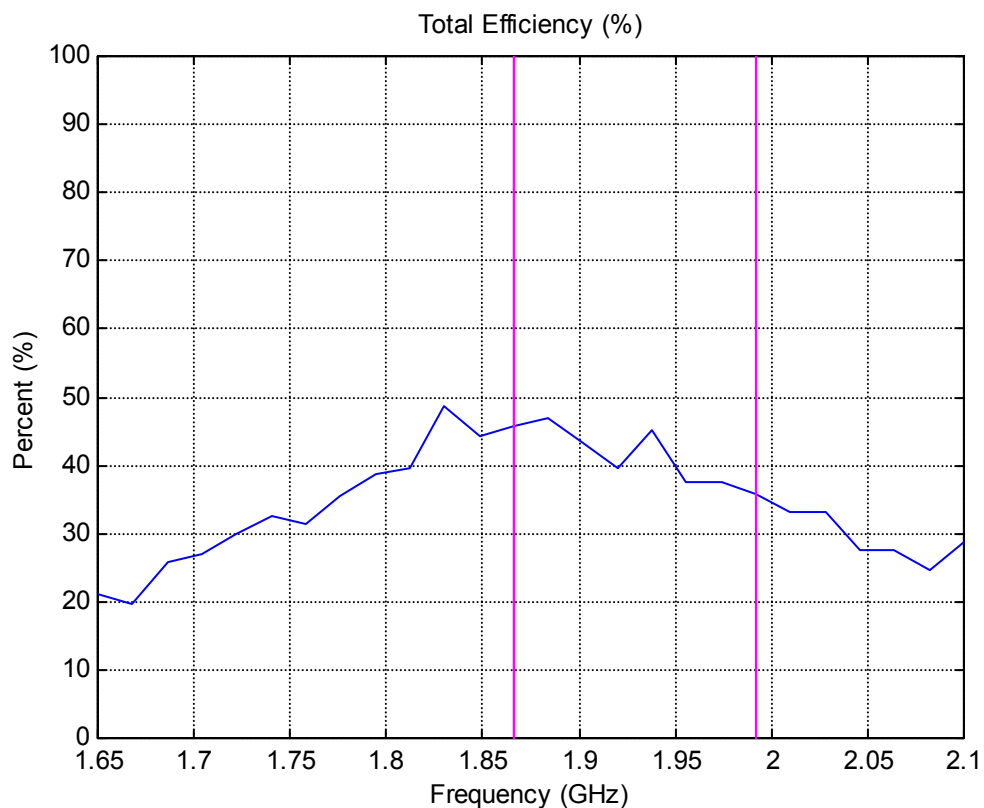
3.2 Efficiency

Overall Eff. (Az.+El.) : 41.62 % (-3.81 dBi) between [1.866 1.992] GHz

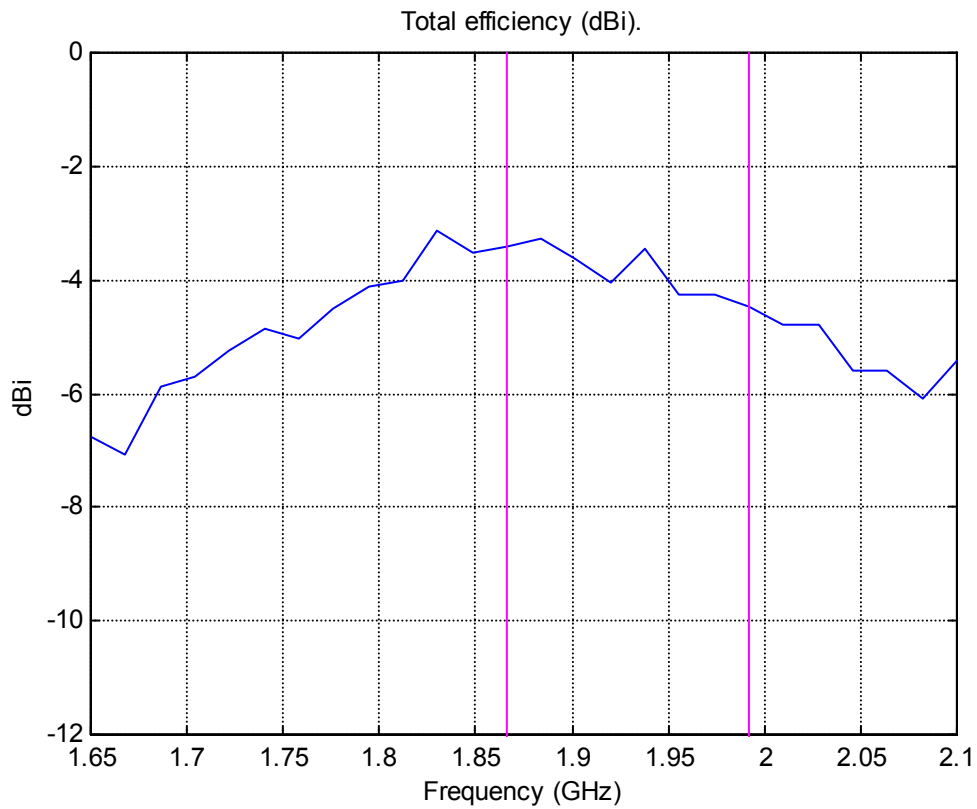
Best Eff. (Az.+El.) : 46.9 % (-3.29 dBi) @ 1.884 GHz between [1.866 1.992] GHz

Low Edge Eff. (Az.+El.) : 45.67 % (-3.4 dBi) @ 1.866 GHz

High Edge Eff. (Az.+El.) : 35.87 % (-4.45 dBi) @ 1.992 GHz



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3.3 Radiation Pattern

Red: Main polarization

Blue: Cross polarization

Green: Main+Cross polarization

Azimuth

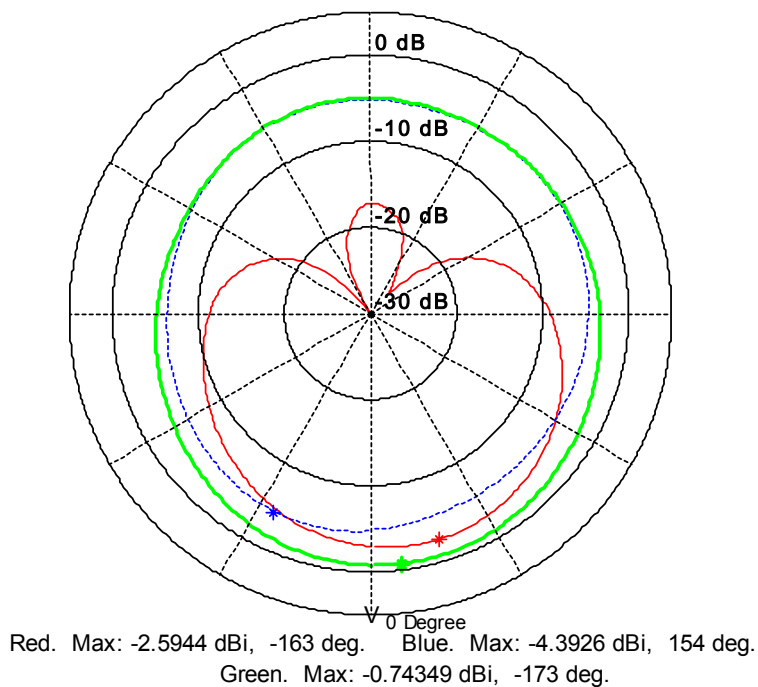
Freq. = 1.92 GHz $G_{\{max\}} = -0.74349$ dBi $G_{\{avg.\}} = -3.2581$ dBi

Elevation

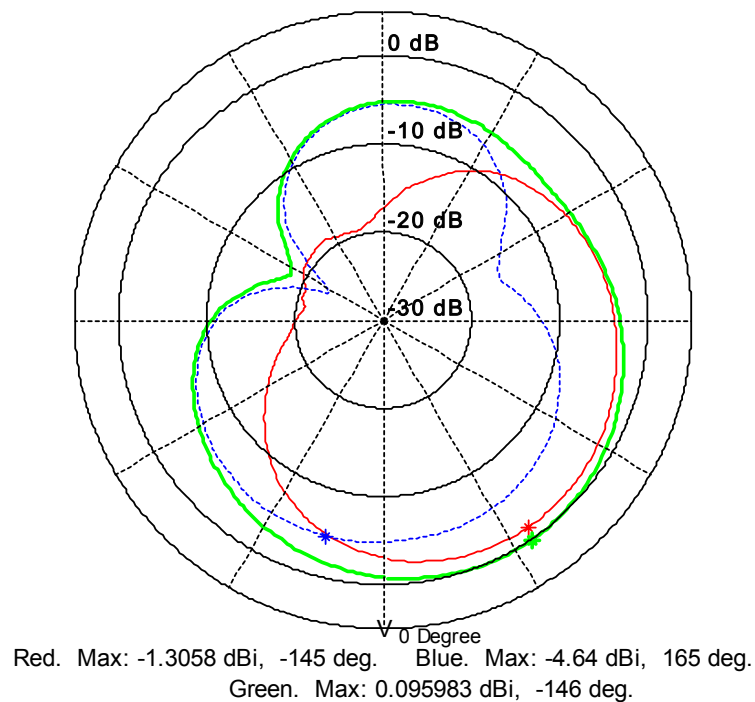
Freq. = 1.92 GHz $G_{\{max\}} = 0.095983$ dBi $G_{\{avg.\}} = -3.7929$ dBi

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Freq = 1.92 GHz $G_{\max.} = -0.74349 \text{ dBi}$ $\text{Gain}_{\text{avg.}} = -3.2581 \text{ dBi}$



Freq = 1.92 GHz $G_{\max.} = 0.095983 \text{ dBi}$ $\text{Gain}_{\text{avg.}} = -3.7929 \text{ dBi}$

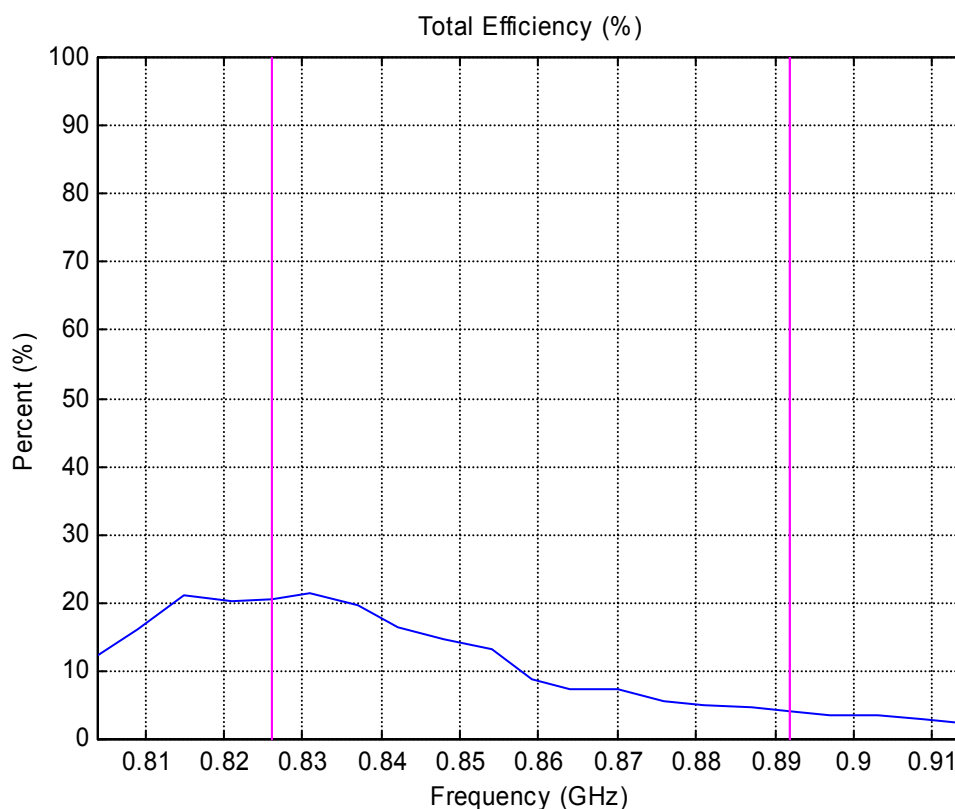


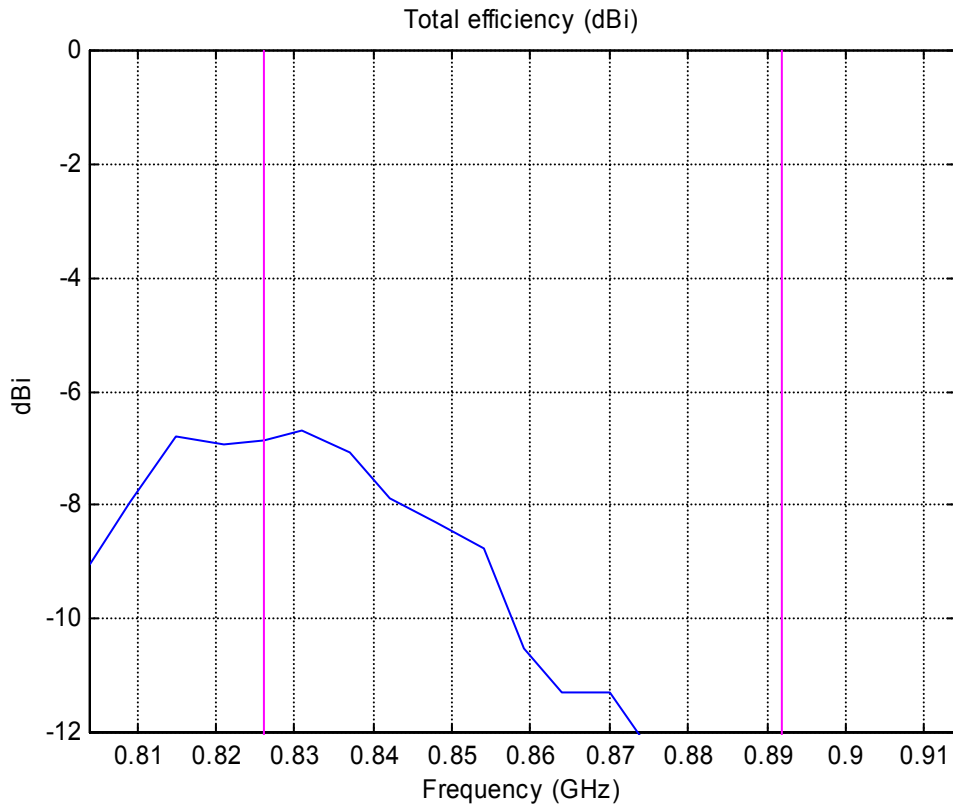
4 Head Data

4.1 Efficiency Low Band Against the Head

Statistics - Version 1.6

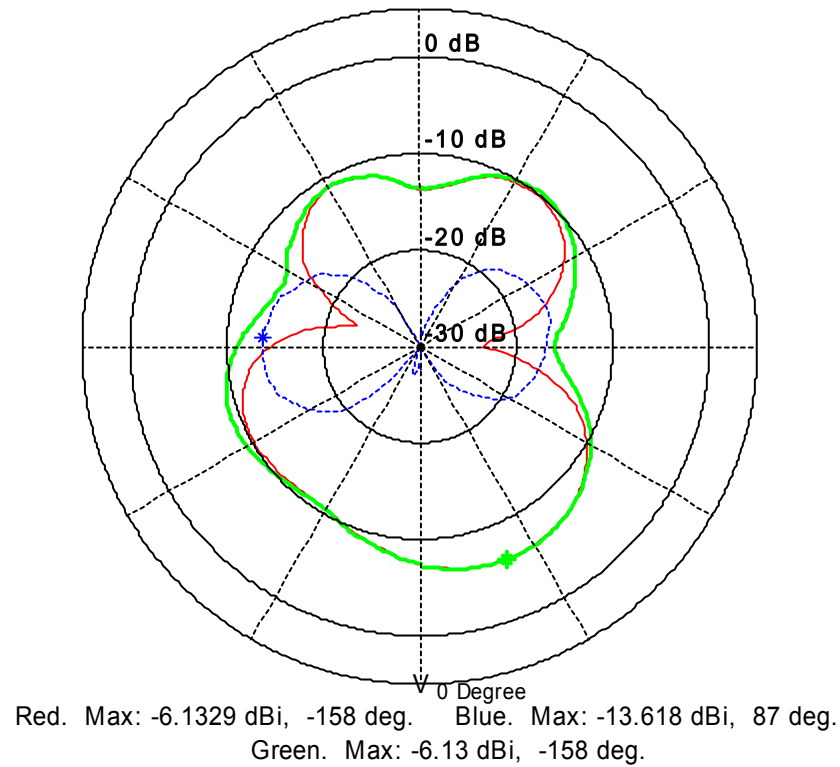
Overall Eff. (Az.+El.) : 10.73 % (-9.7 dBi) between [0.826 0.892] GHz
Best Eff. (Az.+El.) : 21.48 % (-6.68 dBi) @ 0.831 GHz between [0.826 0.892] GHz
Low Edge Eff. (Az.+El.) : 20.55 % (-6.87 dBi) @ 0.826 GHz
High Edge Eff. (Az.+El.) : 4.003 % (-14 dBi) @ 0.892 GHz





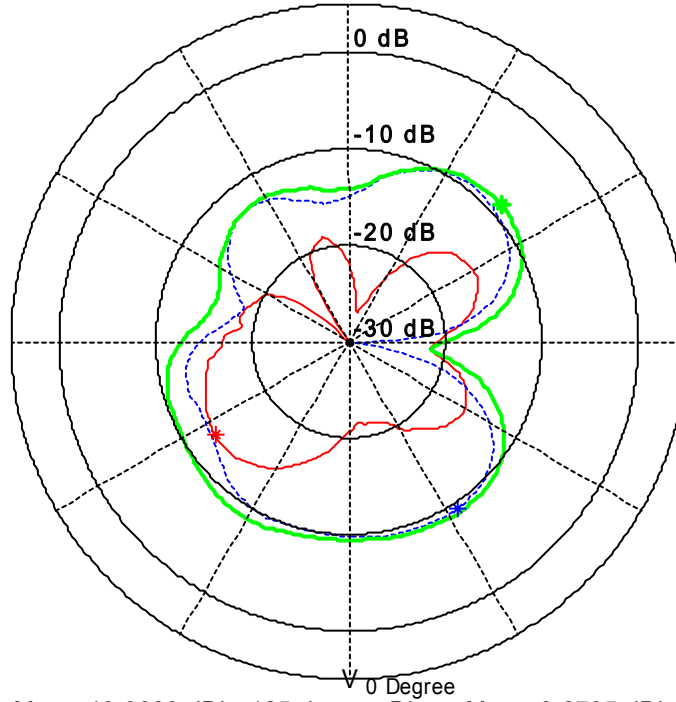
4.2 Radiation Patterns

Freq = 0.87 GHz $G_{\max.} = -6.13 \text{ dBi}$ $\text{Gain}_{\text{avg.}} = -10.0632 \text{ dBi}$



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Freq = 0.87 GHz $G_{\max.} = -8.7561 \text{ dBi}$ $\text{Gain}_{\text{avg.}} = -10.9839 \text{ dBi}$

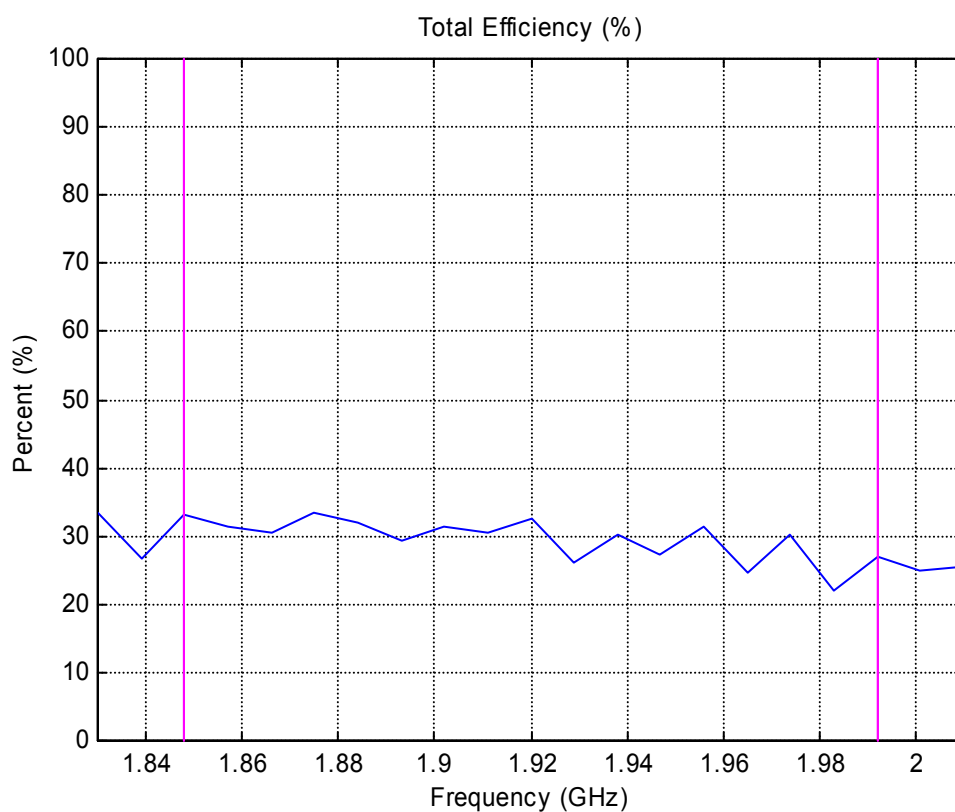


Red. Max: -13.0683 dBi, 125 deg. Blue. Max: -9.2735 dBi, -147 deg.
Green. Max: -8.7561 dBi, -48 deg.

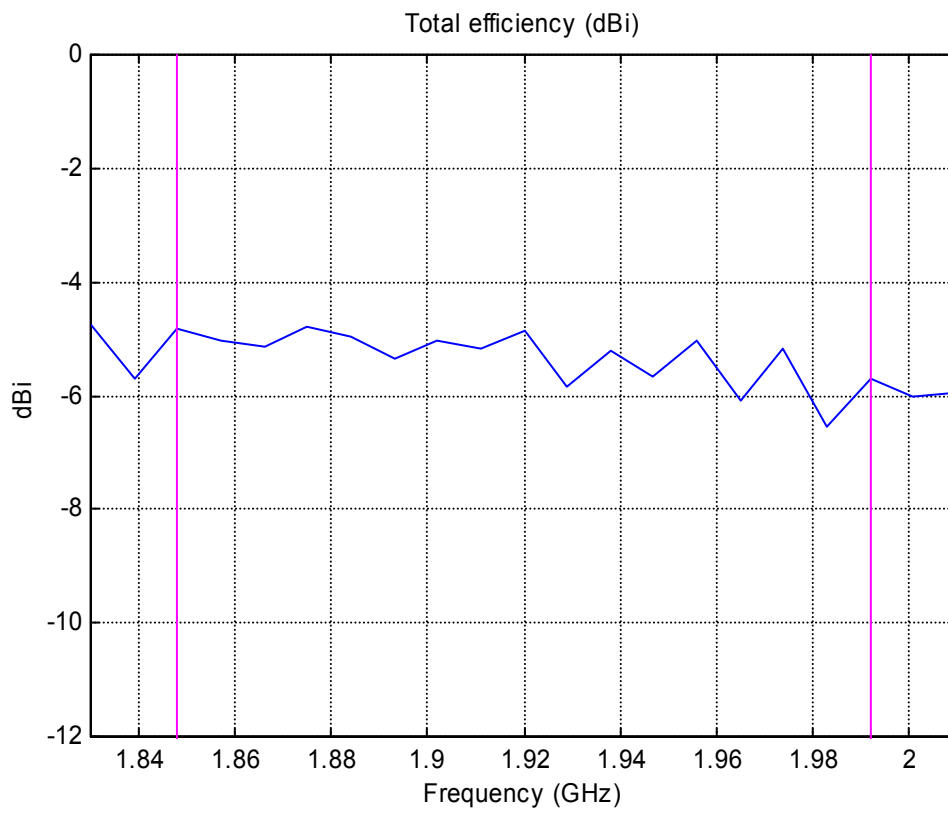
4.3 Efficiency High band Against the Head

Statistics - Version 1.6

Overall Eff. (Az.+El.) : 29.72 % (-5.27 dBi) between [1.848 1.992] GHz
Best Eff. (Az.+El.) : 33.34 % (-4.77 dBi) @ 1.875 GHz between [1.848 1.992] GHz
Low Edge Eff. (Az.+El.) : 33.03 % (-4.81 dBi) @ 1.848 GHz
High Edge Eff. (Az.+El.) : 26.91 % (-5.7 dBi) @ 1.992 GHz

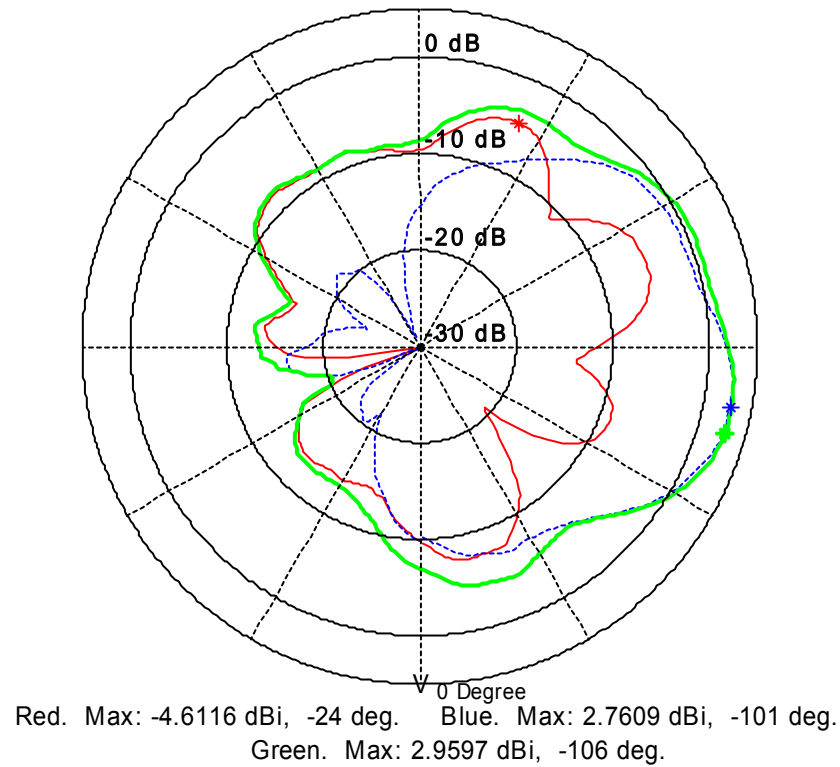


Confidential



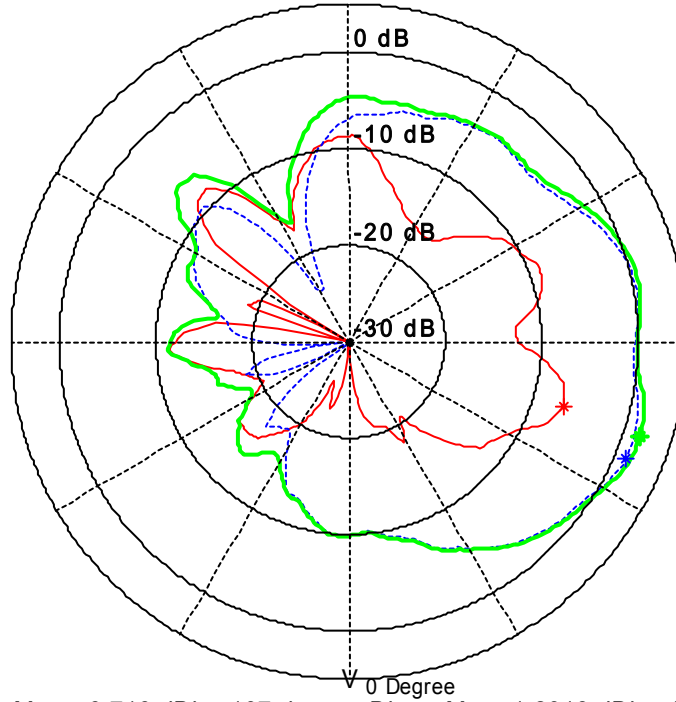
4.4 Radiation Patterns

Freq = 1.92 GHz $G_{\max.} = 2.9597$ dBi $\text{Gain}_{\text{avg.}} = -3.615$ dBi



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Freq = 1.92 GHz $G_{\max.} = 1.795 \text{ dBi}$ $\text{Gain}_{\text{avg.}} = -4.3749 \text{ dBi}$



Red. Max: -6.716 dBi, -107 deg. Blue. Max: 1.2318 dBi, -113 deg.
Green. Max: 1.795 dBi, -108 deg.